

$$\sigma = \sigma_0 - (2\sigma_0 l/k) \sinh(\sigma_0) \approx \sigma_0 / (1 + 2\sigma_0 l/k)$$
 (σ_0 is initial stress). It follows from Equation (1) for the creep ϵ_p by self-diffusion that $\epsilon_p = C' p t / (1 + p l)$, where

$$p = 2\sigma_0 l/k.$$

In addition to ϵ_p , there is a creep component ϵ_g due to gliding on the grain boundaries. It is assumed that $\epsilon_g = \epsilon_p l$. The total creep is therefore

$$\epsilon = \epsilon_p l + C' p t / (1 + p l) \quad (2)$$

with appropriate values for p , C' and ϵ_p . Five experimental creep curves given in the paper for different steels at high temperatures could be represented extremely well by Equation (2).

The initial portion of the relaxation curve can be represented in the form

$$\sigma = \sigma_0 \exp[-kt/(1 + p l)] \quad (3)$$

if it is assumed that the velocity of relaxation is proportional to the stress [$k = \sigma_0 / (1 + p l)$]; σ_0 seems to be the same as σ_0 . Three experimental curves are shown to be in fairly good agreement with Equation (3). It is stated that the creep relation given by the author is the first one to be derived theoretically.

(1. Maslog, Germany

May 1949

The author suggests that self-diffusion takes place in a polymer through the tubules of a stress gradient. A stress gradient is computed into the observed period of the body. He claims that this interpretation explains the fact that the creep of a tensile test, as at the beginning, about twice as great as in the tensile test, as previously shown by the author (Mark, *Building A and Chemical Engineering*, 1944, no. 5). The starting point of the tubule is the uniaxial stress relation

$$I_0 \frac{dI}{dt} = - (1/f) I_0 \frac{dI}{dt}$$

The migration of a volume dV through a surface dS into a dilated unit of volume results in a change of stress $\Delta \sigma = F(1 - 2\nu)$ (ν is the Poisson ratio). The author finds

U.S. DEPT. OF AGRICULTURE

where λ is the dimensionless atomic volume in which the elementary steps of diffusion takes place; $D = A \exp(-Q/RT)$ is the constant of self-diffusion. It follows that

30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862,

where a is a AT, L is $2E/\exp(-Q/RT)$ (1 - 2b). Then the surface of a bent rectangular specimen is the height a , for small values of a .

Rheology
(Plastic,
Viscoplastic
Flow)
28

ODING, I.A.

PA 62T37

USSR/Engineering
Machinery - Construction
Stability, Structural

Mar 1948

"Fatigue Resistance in Machine Construction," I. A.
Oding, Corr Mem, Acad Sci USSR, 6 pp

"Vest Mash" No 3

In castings it is possible to increase the stability of cast parts, and thus control their internal tensions. Discusses stability at increased temperatures, surface stability of metals, stability of metals as factor in their use in construction, and briefly comments on the yet unsolved problem of stability of metals.

62T37

ODING, IVAN AVGUSTOVICH

Metod opredelenia tsiklicheskoj viazkosti i primeneniia ego pri raschetakh kontsentratsii napriazhenii. (Vestn. Mash., 1948, no.1, p. 5-16.)

Method of determining the cyclic viscosity and its use for calculating the concentration of stresses.)

DLC: TM4. V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union
Library of Congress, 1953.

ODING, I.A.

Achievements of the Soviet school of thought in the theory of metal strength. Vest.mash.27 no.11:32-38 N '47. (MLRA 9:4)

1.Chlen-korrespondent AN SSSR.
(Strength of materials) (Physical metallurgy)

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSES AND PROPERTIES INDEX																			
2a-22. Interpretation of the Coefficient of Strength of Metals. (In Russian.) I. A. Odintsov, Izvestiya Akademii Nauk SSSR, Otdelenie Tekhnicheskikh Nauk (Bulletin of the Academy of Sciences of the U.S.S.R., Section of Technical Sciences), Dec. 1947, p. 1713-1719. Coefficient is derived from Nadai's equation for plastic deformation. It is assumed to be a composite value composed of modulus of elasticity and coefficient of relaxation.																			
<i>Evaluation B-7577</i>																			
METALLURGICAL LITERATURE CLASSIFICATION										10000 20000 30000 40000 50000 60000 70000 80000 90000 10000 20000 30000 40000 50000 60000 70000 80000 90000									

CHUDAKOV, Ye.A., akademik, glavnyy redaktor; AKOPOV, S.A., redaktor; ARTOBO-
LEVSKIY, I.I., redaktor; ACHERKAN, N.S., redaktor; BEZPROZVANNYY, I.M.,
redaktor; GUDTSOV, N.T., redaktor; DIKUSHIN, V.I., redaktor; YEFREMOV,
A.I., redaktor; ZAPOROZHETS, V.K., redaktor; ZININ, A.I., redaktor; KA-
ZAKOV, N.S., redaktor; KIRPICHEV, M.V., redaktor; KOVAN, V.M., redaktor;
KONYUSHAYA, Ya.P., redaktor; LIPGART, A.A., redaktor; MALYSHEV, V.A., re-
daktor; MARTESS, L.K., redaktor; MARIYENBAKH, L.M., redaktor; NIKOLAYEV,
G.A., redaktor; ODING, I.A., redaktor; PATON, Ye.O., redaktor; RAMZIN,
L.K., redaktor; RUBTSOV, N.N., redaktor; SAVERIN, M.A., redaktor; SEMEN-
CHENKO, I.I., redaktor; SERENSEN, S.V., redaktor; SHAMNI, N.A., redaktor;
SHELEST, A.N., redaktor; SHUKHAI'TER, L.Ya., samestitel' glavnogo re-
daktora, redaktor; YAKOVLEV, A.S., redaktor.

[Machine construction encyclopedic handbook] Mashinostroenie; entsiklope-
dicheskii spravochnik. Part 1. [Engineering calculations in machine
construction] Inzhenernye raschety v mashinostroyeni. Moskva, Gos. nauch-
no-tekhn. izd-vo mashinostroyit. lit-ry, Vol. 1. no.1. 1947. 548 p.

(Mechanical engineering)

(MIRA 8:1)

ODING, I.A.

[Mechanical engineering, reference encyclopedia] Mashinostroenie. Entsiklopedicheskii spravochnik. Vol.4, Pt.2.[Machine construction materials] Materialy mashinostroeniia. Moskva, Gos. nauchno-tekhnicheskoe izd-vo mashinostroitel'noi lit-ry, 1947. 428 p. (MLRA 7:2)

1. Chlen-korrespondent Akademii nauk SSSR. (Materials)

ODING, IVAN AVGUSTOVICH.

Dopuskaemye napriazheniia v mashinostroenii i tsiklicheskaia prochnost' metallov. 3. izd., ispr. Moskva, Mashgiz 1947. 184 p., diagrs.

Bibliography:pl86-184.

Title tr.: Allowable stresses in machine design and strength of metals under alternating loads.

TA460.032 1947

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001237800043-6

RELAXATION AND CREEP OF METALS. I. A. Odling (Fein. Mashinostroeniya, 1946, 26, (1/2), 25-35; C. Abs., 1947, 41, 1187). [In Russian]. A mathematic analysis.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001237800043-6

21a-142. Experimental Investigation of the Strength of Metals and Joints in Construction of Electrical Machinery. (In Russian.) I. A. Odintsov and P. V. Kulikov. Collection of Reports Concerning the Dynamic Strength of Machine Parts, Academy of Sciences of the U.S.S.R., 1946, p. 238-253.

The study of the phenomena of fatigue, creep, and internal stress is complicated by the existence of specific peculiarities in the design of such machinery.

ASAC-142 METALLURGICAL LITERATURE CLASSIFICATION

142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200

142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200

142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001237800043-6

9a-34. Influence of Size and Shape of Specimens on Their Fatigue Strength. (In Russian.) I. A. Odling. Collection of Reports Concerning the Dynamic Strength of Machine Parts, Academy of Sciences of the U.S.S.R., 1946, p. 141-156.

"Dimensional factor" should not be considered by itself but only in connection with composition, crystal structure, heat treatment, and geometrical shape (also notch type, if present). 35 ref.

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Permissible Stresses in Engineering Work and Cyclic Strength of Metals, ~~MOSEVICH~~
published in Moscow, 1946.

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ODING, Ivan Avgustovich. A reference book on structural steels. Pod red. N. A. Shamina. Moskva, Mashgiz, 1946. 181 p. (Ministerstvo tiazhelogo mashinostroeniia SSSR. TSNIITMASH)

ODING, IVAN AVGUSTOVICH.

Dopuskaemye napriazheniia v mashinostroenii i tsiklicheskaia prochnost' metallov. (2 izd.) Moskva, Mashgiz, 1944. 183 p. diagrs.

First ed. pub. in 1941 under title; Ustalost metallov i zadachi mashinostroeniia. (Fatigue of metals and problems of mechanical engineering.)

Bibliography: p. 179-183.

Allowable working stresses in mechanical engineering under cyclical variations of the strength of metals.

DLC: TA460.032 1944

NN

SO: Manufacturing and Mechanical Engineering in the Soviet Union
Library of Congress, 1953.

Effect of high-frequency hardening on the mechanical properties of steel. E. V. Shkier and I. A. Odling. *Vestnik Metalloprof.* 20, No. 7, 7-17 (1940). *Metals Engineering*.
 xated included (1) C steel 46 contg. C 0.36, Si 0.29, Mn 0.50, Cr 0.14, Ni 0.42, S 0.027 and P 0.025%; (2) Cr steel 40Kh contg. C 0.37, Si 0.37, Mn 0.64, Cr 1.00, Ni 0.31, S 0.027 and P 0.025%; and (3) Cr-Ni steel 30KhN4A contg. C 0.38, Mn 0.81, Cr 1.50, Ni 3.80, S 0.025 and P 0.020%. The frequencies ranged from 50,000 to 100,000 hertz and the hardened layers were up to 3.0 mm. deep. Some specimens were hardened throughout with frequencies of 500,000 hertz. The effects of this treatment were not the same on all the mech. characteristics. The tensile strength was greatly increased but by tempering it was reduced to the value shown by normalized specimens. The plastic properties were sharply reduced but these were restored to a considerable extent by tempering at 400° and particularly at 500°. The impact toughness was reduced to as low as 1 kg.-m./sq. cm. but after tempering it was raised to over 3 kg.-m./sq. cm. For steel 40Kh the fatigue limit was raised while for the other steels it was reduced considerably in comparison with the normalized specimens. It is shown that an increase of the yield point by 100-200% does not produce such an increase of the fatigue limit but may even reduce it. B. Z. Kamich

ASB-31A METALLURGICAL LITERATURE CLASSIFICATION

M

21

***Method of Determining the Machinability of Metals.** I. A. Odling and P. R. Virrille (Zavod. Lab. (Works' Lab.), 1940, 8, 1025-1029; *Chem. Zvest.*, 1942, 118, (1), 261); C. Abs., 1943, 37, 3379). - [In Russian.] A device for testing the machinability of iron, steel, and non ferrous metals is described. The instrument is easy to operate, and the effect of structural inhomogeneities is eliminated by the use of small specimens. The machining mechanism, and the effects of structure and tool conditions, can be studied. The instrument permits the determination of cutting indexes at room and elevated temperatures, and the measurement of the tool temperature. The cutting indexes at a speed of 0.4 m./minute have been determined for cast iron, steel, alloy steels, brass, and bronze.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
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 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ

CA

9

PROCESSES AND PROPERTIES INDEX
 1ST AND 2ND EDITIONS

Method of determining the ultimate deformation and ultimate strain in creep. I. A. Oding. *Zavodskaya Lab.* 8, 850-9 (1930).--On the basis of an analysis of creep curves O. offers a method for detg. ultimate deformation and ultimate strain in creep by the graphical treatment of the diagram of elongation. It is claimed that these 2 characteristics make it possible to det. the max. length of service of an object under given strain and speed of creep provided the material is not subject to phase or structure changes or intercryst. phenomena which may also result in sudden failure of the object. B. Z. K.

COMMON ELEMENTS
 COMMON VARIABLE ELEMENTS

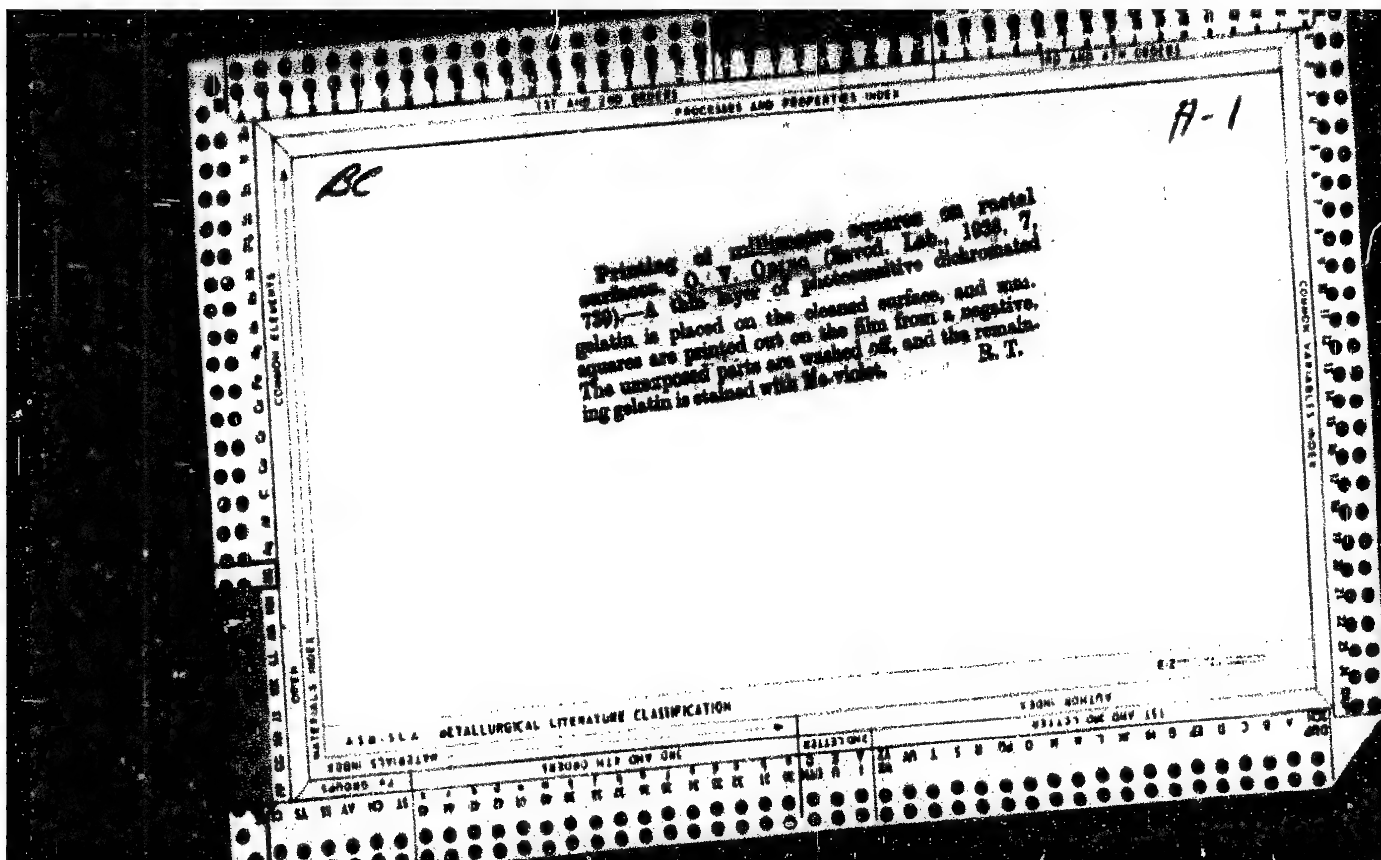
OPEN
 MATERIALS INDEX

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX
 1ST AND 2ND EDITIONS

GROUPS
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ

1ST AND 2ND EDITIONS
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ



1ST AND 2ND EDITIONS

PROCESSES AND PROPERTIES INDEX

Effect of uneven distribution of strain through the core of section on the limits of plastic flow and fatigue. I. A. Orling, *Zavodskaya Lab.* 7, 446 58(1938); C. A. 28, 5792; *Metalurg* 1937, Nos. 9-10. The coeffs. of equiv. strains in thermally treated metals (Cu, brass and C steels) are detd. by math. analysis of published data on the limits of flow and fatigue at bending and twisting. The graphic results show that the magnitude of flow limit is greatly influenced by the shape of the cross section of the sample (rectangular, rhombic and circular). The influence of an uneven or defective structure of metals (solid and hollow cylinders) is considerably greater on the fatigue limits than on the flow limits. Hence, the relation between the limits of fatigue at different forms of stress varies within a very wide range. The width of the hysteresis loop influences greatly the relation of the limits of fatigue at bending, twisting and expansion. Fifteen references.

Chas. Blane

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND EDITIONS

1ST AND 2ND COLUMNS										3RD AND 4TH COLUMNS									
MATERIALS INDEX										PROCESSES AND PROPERTIES INDEX									
The strength of carbon-containing structural steels. I. A. Kikind. <i>Metallurg</i> 12, No. 9-10, 81-91 (1967). <i>Chem. Abstr.</i> 1968, 11, 631; cf. C. A. 32, 8899. The degn. of characteristic mech. properties of C-contg structural steels under static, dynamic and alternating stresses and the significance of such properties are con- sidered, as is also the appearance of simple and complex strains.										M. G. Moore									
ASB-AL A METALLURGICAL LITERATURE CLASSIFICATION										10000 0001/00									
10000 0001/00										10000 0001/00									

CYCLES, AND A COMPLEX STRAINED STATE. I. A. Odine
(Zavod. Lab., 1937. 6, 471 - 479). --

Theoretical.

R.T.

ASB-316 METALLURGICAL LITERATURE CLASSIFICATION

STRESS STRAIN										TENSILE STRENGTH										COMPRESSION										BENDING										TORSION										OTHER									
TENSILE STRENGTH										TENSILE STRENGTH										TENSILE STRENGTH										TENSILE STRENGTH										TENSILE STRENGTH										TENSILE STRENGTH									

COMMON ELEMENTS										PROCEDURES AND PROPERTIES INDEX										COMMON VARIANTS INDEX									
MATERIALS INDEX										1ST AND 2ND LETTERS										3RD AND 4TH LETTERS									
<i>M</i> Oding, I. A. The Science of Metals. The Strength of Metals. [In Russian.] Third Edition. Pp. 686. 1937. Leningrad and Moscow: Onti. (Rbl. 8.00.)																													
ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION																													
1ST AND 2ND LETTERS																													
3RD AND 4TH LETTERS																													

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200

201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300

301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400

401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500

501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600

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701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800

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1001 1002 1003 1004 1005 1006 1007 1008

1ST AND 2ND EDITIONS 3RD AND 4TH EDITIONS PROCESSES AND PROPERTIES INDEX									
M 32 Oding, Iwan Awgustowitch, and O. A. Oding. <i>Das Gusseisen als Gießmaterial.</i> [In Russian.] 3. umgearb. u. erg. Aufl. Pp. 183. 1933. Leningrad-Moskau-Swerdlowsk : Glaw. red. lit-ry po tschernoi metal-lurgii. (Rbl. 2.50.)									
1ST AND 2ND EDITIONS 3RD AND 4TH EDITIONS PROCESSES AND PROPERTIES INDEX									

The Mechanism of Creep in Metals. I. A. Odling (*Metallog. (The Metallurgist)*, 1934, 9, (1), 14-24; *C. Abstr.*, 1934, 29, 5762).—[In Russian.] The mathematical relations between the softening of the specimen due to heating and the simultaneous hardening due to straining the specimen are developed. These relations hold well for mild carbon and chromium-nickel-molybdenum steels. By use of these formulae O. claims that one short-time test is sufficient to determine the creep limit.—R. G.

ASM-34A METALLURGICAL LITERATURE CLASSIFICATION

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001237800043-6

1ST AND 2ND ORDERS										PROCESSING AND PROPERTIES INDEX										3RD AND 4TH ORDERS									
62 11 Analysis of Tensile Tests. I. Odintsov (Tech. Physics (U.S.S.R.), 1934, 1, 101-107).—[In Russian.] Mathematical—S. G.																													
ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION																													
1ST AND 2ND ORDERS										PROCESSING AND PROPERTIES INDEX										3RD AND 4TH ORDERS									
1ST AND 2ND ORDERS										PROCESSING AND PROPERTIES INDEX										3RD AND 4TH ORDERS									

23

*Oeding, I. A. Die heutigen Methoden der Metalluntersuchung. [In Russian.]
3 Auflage. Pp. 748. 1934. Leningrad, Moscow, and Sverdlovsk:
Metallurgizdat. (Rbl. 3.25.)*

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION
FROM STANISLAV

RUSSIAN ROMAN
RUSSIAN ONE ONLY LIST

SECOND MIX ONE USE

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24

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Flakes in mild carbon steel. I. A. Odling. *Metallurg* 8, No. 9, 42-9(1933); cf. C. A. 26, 5048. Flakes, or white spots of minute cracks, are possible in C steels if non-metallic inclusions having a different coeff. of expansion from that of the steel are present. Also in low-C steels contg. dendritic segregations of P large dilatometric changes take place in cooling because not all particles of steel go through the transformation points at the same time. This causes internal stress and flakes.

H. W. Rathmann

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND INDEXES										PROCEDURES AND PROPERTIES INDEX									
5 18 ODING, J. A. "Modern Methods of Investigating Metals." (In Russian.) Second edition, pp. 236, Moscow and Leningrad, 1932: Wism. Techn. Verlag für Maschinenbau, Metallbearbeitung u. Elektrometallurgie. (Price 2.80 rubles.)																			
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ASPH-SLA METALLURGICAL LITERATURE CLASSIFICATION 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20										21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40									

ABADZHI, K.I.; BOYTSOV, A.N.; VOLOSEVICH, F.P.; GOBERMAN, P.N.;
KEMPINSKIY, M.M.; KUTAY, A.K.; NARINSKIY, F.I.; ODING,
G.A.; TAYTS, B.A.; RUBINOV, A.D.; SHTYURMER, G.A.;
BRZHEZINSKIY, M.L., kand. tekhn. nauk, retsenzent;
SHALAYEVSKIY, O.V., red.; LEYKINA, T.L., red.izd-va;
SPERANSKAYA, O.V., tekhn. red.

[Handbook on production control in the machinery industry]
Spravochnik po proizvodstvennomu kontroliu v mashinostro-
eni. Izd.2., perer. i dop. Moskva, Mashgiz, 1964. 748 p.
(MIRA 17:3)

ALEKHIN, S.V., doktor tekhn. nauk, prof.; GROKHOL'SKIY, K.F.,
 kand. tekhn. nauk, dots.; ZOLOTNIKOV, I.M., kand. tekhn.
 nauk, dots.; KOCHUGOV, P.I., kand. tekhn. nauk, dots.;
 MALYSHEV, G.M., kand. tekhn. nauk, prof.; KHLEBNIKOV, M.S.,
 kand. tekhn. nauk, retsenzents; PISAREV, N.G., kand. tekhn.
 nauk, dots., retsenzents; ODING, I.A., kand. tekhn. nauk,
 dots., retsenzents; KURENKOV, I.I., kand. tekhn. nauk,
 retsenzents; PROKOF'YEVA, Ye.I., inzh., retsenzents; YAKOVLEV,
 D.A., inzh., retsenzents; SERGEYEVA, I.N., red.

[Design of technological processes for the manufacture of
 billets and parts for the rolling stock of railroads;
 methodological manual on the technological aspects of di-
 ploma projects prepared in institutions of higher learning
 of railroad transportation] Proektirovanie tekhnologicheskikh
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 stava zheleznnykh dorog; uchebno-metodicheskoe posobie po tekhn-
 ologicheskoi chasti diplomnogo proektirovaniia v vuzakh zhe-
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 zhenerov zhel-dor. transporta. Pt.1. 1964. 202 p.

(NIRA 18: 9)

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NARINSKIY, F.I.; ODING, G.A.; RUBINOV, A.D.; SHTYURMER, G.A.;
BRZHEZINSKIY, M.L., kandidat tekhnicheskikh nauk, retsenzent; PETROV,
V.I., inzhener, retsenzent; KEMPINSKIY, M.M., inzhener, redaktor;
LEYKINA, T.L., redaktor izdatel'stva; POL'SKAYA, E.G., tekhnicheskiy
redaktor

[Reference manual for production control in machine building] Spravochnik po proizvodstvennomu kontroliu v mashinostroenii. Pod obshchei red. A.K.Kutai. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 670 p, (MLRA 9:12)
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Oding, G. A.

MG 2579* Relation Between Position of Martensitic Point and
State of the Austenite. Zavolnoy polucheniya martensitov
rachki ot perlozheniya austenita. (Russian.) G. A. Oding.
Metallovedeniye i obrabotka metallov, 1955, no. 4, 222-224.
Intensiveness of austenitic transformation. Effect of rate of cool-
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Chem. Tech. Sci

of

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B. T. R.
Vol. 3 No. 5
May 1954

Metals—Metallography, Transformations,
and Structures

7028 Contribution to the Problem of the Austenite-Martensite Transformation, G. A. Oding, Henry Bratcher, Al-
tadena, Cal., Translation no. 8046, 8 p. (From Vestnik
Mashinostroeniya, v. 32, no. 3, 1952, p. 69-71.)
Study of martensite transformation over entire temperature
range of this transformation at a cooling rate not in excess of
5 F per minute based on dilatometric method. Table, graphs.
8 ref.

ODING, G. A.

Iron-Nickel Alloys

Martensite transformation in iron-nickel alloy. Vest. mash. 31, no. 10, 1951.

9. Monthly List of Russian Accessions, Library of Congress, September, 1952 ~~1953~~. Unclassified.

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESS AND PROPERTIES INDEX																			
22																			
Decomposition of Residual Austenite at Low (Sub-Zero) Temperatures. G. A. Ching. (Zavodskaya Laboratoriya: Hutnische Listy, 1951, vol. 8, Mar., p. 143. [In Czech]. The investigations were carried out by a differential dilatometer on steel specimens 4.5 mm. in dia. and 130 mm. long, which were heated to a suitable temperature and oil-quenched. The cooling speed in the dilatometer was 0.5 to 1.5° C./min. The materials used were: Chromium, chromium-tungsten, and chromium-silicon steels. The dilatometric curves show that when cooling at 0.5 to 1° C./min., hardened U12A steel shows a sudden noticeable elongation at a temperature of about -45° C. and the elongation continues during cooling to lower temperatures and stops suddenly at -115-6° C. This elongation is due to transformation of residual austenite into martensite, and it can be concluded that some austenite remains and does not transform.—E. G.																			
ASH-55A METALLURGICAL LITERATURE CLASSIFICATION																			
SECTION 1										SECTION 2									

CA 9

Transformation of residual austenite at negative temperatures. G. A. Odling, *Zorodskaya Lab. 10, 475-9(1950).*—A recording differential dilatometer was used with specimens 130 mm. long and 4.5 mm. in diam. The specimens were previously oil-quenched to 20° from the hardening temp., and were then cooled at 0.5 to 1.5°/min. Transformation of residual austenite to martensite was indicated by expansion of the specimen. In steel U12A transformation occurred uniformly in the range -48 to -116.5°, but a subsequent dilatometric study during heating to 400° showed that some residual austenite remained after the low temp. treatment. Steels KhG, KhVG, 9KhS, and ShKh15 behaved in a similar manner except that the rate of austenite transformation varied with temp. The hardness of the cooled steels remained about 2 points Rockwell hardness above that of uncooled steels during tempering up to about 250°. Above this temp. the uncooled steels were about 2 points harder in the range studied (up to 350°).

A. G. Guy

ODING, G. A.

PA 46/49T29

USSR/Engineering
Tools, Cutting
Steel

Jun 49

"Heating During the Cutting Operation," G. A. Oding,
4 pp

"Dok Ak Nauk SSSR" Vol LXVI, No 4

Using samples of type 35 carbon steel, author found that heating of the working surface, through which heat forming during cutting is transmitted throughout the piece, increases with increase in cutting depth, and decreases with increase in feed and cutting speed. Submitted by Acad I. I. Artobolevskiy, 4 Jan 49

46/49T29

Reports study of magnitude of influence of cutting speed, feed, and depth of cut upon increase in temperature of work during machining. Discusses sequence of effectiveness of above three cutting variables for minimum temperature rise. Data are plotted.

Reports study of magnitude of influence of cutting speed, feed, and depth of cut upon increase in temperature of work during machining. Discusses sequence of effectiveness of above three cutting variables for minimum temperature rise. Data are plotted.

CDING, G. A.

Trebovaniia, pred'iavliaemye k metallu pri izgotovlenii izmeritel'nogo
instrumenta. (Vestn. Mash., 1949, no. 5, p. 35-38)

(Quality of metal for manufacturing measuring instruments.)

DLC: TN4.V4

SC: Manufacturing and Mechanical Engineering in the Soviet Union,
Library of Congress, 1953.

9

Formation of soft spots when quenching gases made of carbon tool steel. G. A. Ching and G. P. Weng. *Metallog.* 11, No. 8, 63-72 (1970). The presence of dissolved gases in the quenching liquids causes soft spots. They can be almost entirely eliminated by quenching in a 10% soln. of NaCl. H. W. Rathmann

ASME-51A METALLURGICAL LITERATURE CLASSIFICATION

600 500 400 300 200 100 0

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99

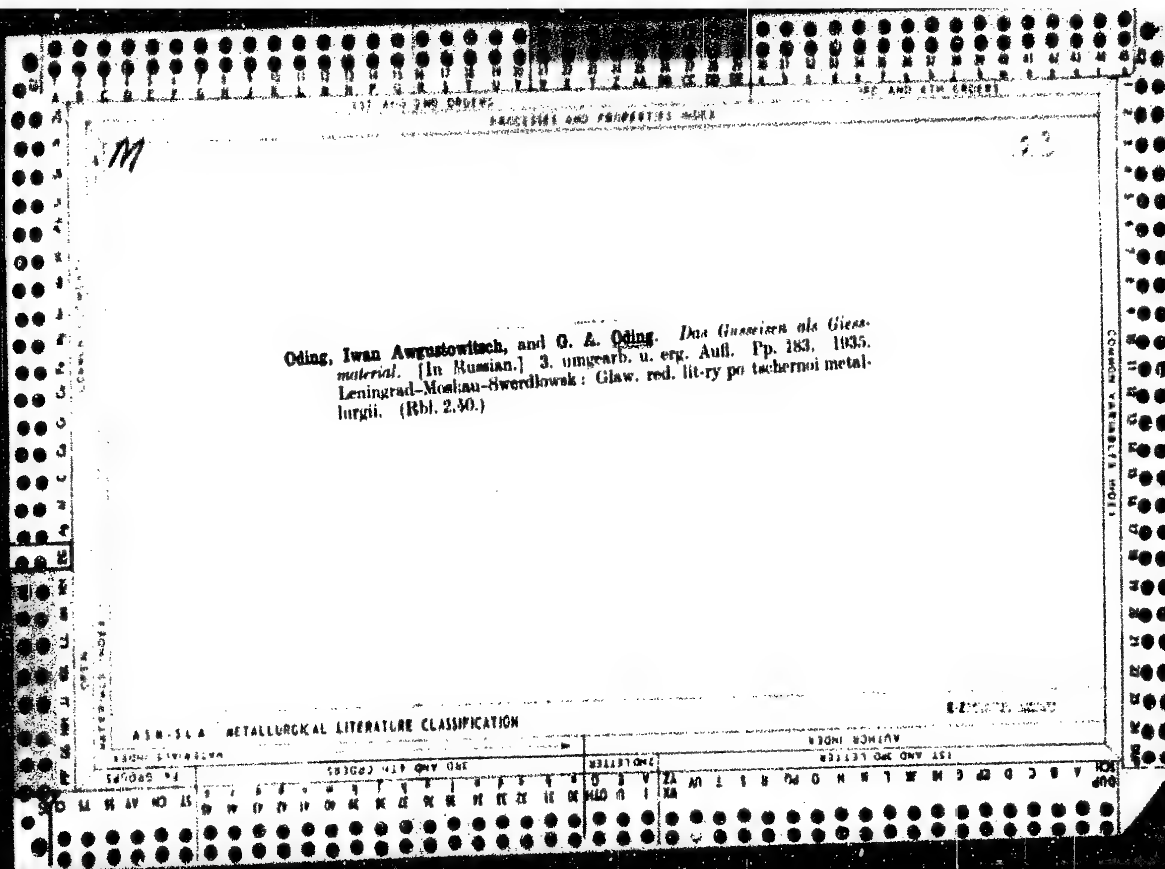
PROCESS AND PROPERTIES INDEX																									
Heat treatment of the steel "XB5" for cutting knives of machine tools for marking graduations. G. A. Oling and N. V. Goryunova. <i>Khimiya Mashinostroi</i> 4, No. 3, 1934 (1936); <i>Chem. Zvesti</i>, 1937, 1, 2214. Studies are reported to det. the most satisfactory heat treatment for increasing the hardness of steel contg. 1.37% C, 0.28% Mn, 0.42% Cr and 5.2% W. By heating the steel to 900-950° with subsequent cooling in air followed by a second heating to 820° with quenching in water of room temp. a Rockwell hardness of 16-18 units was obtained, the steel showing a needle like martensitic structure with a great deal of finely embedded carbide. An annealing treatment at 180-200° produced no essential improvement in the product. M. G. Moore																									
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION 1930-1934 1935-1939 1940-1944 1945-1949 1950-1954 1955-1959 1960-1964 1965-1969 1970-1974 1975-1979 1980-1984 1985-1989 1990-1994 1995-1999 2000-2004 2005-2009 2010-2014 2015-2019 2020-2024 2025-2029 2030-2034 2035-2039 2040-2044 2045-2049 2050-2054 2055-2059 2060-2064 2065-2069 2070-2074 2075-2079 2080-2084 2085-2089 2090-2094 2095-2099 2100-2104 2105-2109 2110-2114 2115-2119 2120-2124 2125-2129 2130-2134 2135-2139 2140-2144 2145-2149 2150-2154 2155-2159 2160-2164 2165-2169 2170-2174 2175-2179 2180-2184 2185-2189 2190-2194 2195-2199 2200-2204 2205-2209 2210-2214 2215-2219 2220-2224 2225-2229 2230-2234 2235-2239 2240-2244 2245-2249 2250-2254 2255-2259 2260-2264 2265-2269 2270-2274 2275-2279 2280-2284 2285-2289 2290-2294 2295-2299 2300-2304 2305-2309 2310-2314 2315-2319 2320-2324 2325-2329 2330-2334 2335-2339 2340-2344 2345-2349 2350-2354 2355-2359 2360-2364 2365-2369 2370-2374 2375-2379 2380-2384 2385-2389 2390-2394 2395-2399 2400-2404 2405-2409 2410-2414 2415-2419 2420-2424 2425-2429 2430-2434 2435-2439 2440-2444 2445-2449 2450-2454 2455-2459 2460-2464 2465-2469 2470-2474 2475-2479 2480-2484 2485-2489 2490-2494 2495-2499 2500-2504 2505-2509 2510-2514 2515-2519 2520-2524 2525-2529 2530-2534 2535-2539 2540-2544 2545-2549 2550-2554 2555-2559 2560-2564 2565-2569 2570-2574 2575-2579 2580-2584 2585-2589 2590-2594 2595-2599 2600-2604 2605-2609 2610-2614 2615-2619 2620-2624 2625-2629 2630-2634 2635-2639 2640-2644 2645-2649 2650-2654 2655-2659 2660-2664 2665-2669 2670-2674 2675-2679 2680-2684 2685-2689 2690-2694 2695-2699 2700-2704 2705-2709 2710-2714 2715-2719 2720-2724 2725-2729 2730-2734 2735-2739 2740-2744 2745-2749 2750-2754 2755-2759 2760-2764 2765-2769 2770-2774 2775-2779 2780-2784 2785-2789 2790-2794 2795-2799 2800-2804 2805-2809 2810-2814 2815-2819 2820-2824 2825-2829 2830-2834 2835-2839 2840-2844 2845-2849 2850-2854 2855-2859 2860-2864 2865-2869 2870-2874 2875-2879 2880-2884 2885-2889 2890-2894 2895-2899 2900-2904 2905-2909 2910-2914 2915-2919 2920-2924 2925-2929 2930-2934 2935-2939 2940-2944 2945-2949 2950-2954 2955-2959 2960-2964 2965-2969 2970-2974 2975-2979 2980-2984 2985-2989 2990-2994 2995-2999 3000-3004 3005-3009 3010-3014 3015-3019 3020-3024 3025-3029 3030-3034 3035-3039 3040-3044 3045-3049 3050-3054 3055-3059 3060-3064 3065-3069 3070-3074 3075-3079 3080-3084 3085-3089 3090-3094 3095-3099 3100-3104 3105-3109 3110-3114 3115-3119 3120-3124 3125-3129 3130-3134 3135-3139 3140-3144 3145-3149 3150-3154 3155-3159 3160-3164 3165-3169 3170-3174 3175-3179 3180-3184 3185-3189 3190-3194 3195-3199 3200-3204 3205-3209 3210-3214 3215-3219 3220-3224 3225-3229 3230-3234 3235-3239 3240-3244 3245-3249 3250-3254 3255-3259 3260-3264 3265-3269 3270-3274 3275-3279 3280-3284 3285-3289 3290-3294 3295-3299 3300-3304 3305-3309 3310-3314 3315-3319 3320-3324 3325-3329 3330-3334 3335-3339 3340-3344 3345-3349 3350-3354 3355-3359 3360-3364 3365-3369 3370-3374 3375-3379 3380-3384 3385-3389 3390-3394 3395-3399 3400-3404 3405-3409 3410-3414 3415-3419 3420-3424 3425-3429 3430-3434 3435-3439 3440-3444 3445-3449 3450-3454 3455-3459 3460-3464 3465-3469 3470-3474 3475-3479 3480-3484 3485-3489 3490-3494 3495-3499 3500-3504 3505-3509 3510-3514 3515-3519 3520-3524 3525-3529 3530-3534 3535-3539 3540-3544 3545-3549 3550-3554 3555-3559 3560-3564 3565-3569 3570-3574 3575-3579 3580-3584 3585-3589 3590-3594 3595-3599 3600-3604 3605-3609 3610-3614 3615-3619 3620-3624 3625-3629 3630-3634 3635-3639 3640-3644 3645-3649 3650-3654 3655-3659 3660-3664 3665-3669 3670-3674 3675-3679 3680-3684 3685-3689 3690-3694 3695-3699 3700-3704 3705-3709 3710-3714 3715-3719 3720-3724 3725-3729 3730-3734 3735-3739 3740-3744 3745-3749 3750-3754 3755-3759 3760-3764 3765-3769 3770-3774 3775-3779 3780-3784 3785-3789 3790-3794 3795-3799 3800-3804 3805-3809 3810-3814 3815-3819 3820-3824 3825-3829 3830-3834 3835-3839 3840-3844 3845-3849 3850-3854 3855-3859 3860-3864 3865-3869 3870-3874 3875-3879 3880-3884 3885-3889 3890-3894 3895-3899 3900-3904 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5405-5409 5410-5414 5415-5419 5420-5424 5425-5429 5430-5434 5435-5439 5440-5444 5445-5449 5450-5454 5455-5459 5460-5464 5465-5469 5470-5474 5475-5479 5480-5484 5485-5489 5490-5494 5495-5499 5500-5504 5505-5509 5510-5514 5515-5519 5520-5524 5525-5529 5530-5534 5535-5539 5540-5544 5545-5549 5550-5554 5555-5559 5560-5564 5565-5569 5570-5574 5575-5579 5580-5584 5585-5589 5590-5594 5595-5599 5600-5604 5605-5609 5610-5614 5615-5619 5620-5624 5625-5629 5630-5634 5635-5639 5640-5644 5645-5649 5650-5654 5655-5659 5660-5664 5665-5669 5670-5674 5675-5679 5680-5684 5685-5689 5690-5694 5695-5699 5700-5704 5705-5709 5710-5714 5715-5719 5720-5724 5725-5729 5730-5734 5735-5739 5740-5744 5745-5749 5750-5754 5755-5759 5760-5764 5765-5769 5770-5774 5775-5779 5780-5784 5785-5789 5790-5794 5795-5799 5800-5804 5805-5809 5810-5814 5815-5819 5820-5824 5825-5829 5830-5834 5835-5839 5840-5844 5845-5849 5850-5854 5855-5859 5860-5864 5865-5869 5870-5874 5875-5879 5880-5884 5885-5889 5890-5894 5895-5899 5900-5904 5905-5909 5910-5914 5915-5919 5920-5924 5925-5929 5930-5934 5935-5939 5940-5944 5945-5949 5950-5954 5955-5959 5960-5964 5965-5969 5970-5974 5975-5979 5980-5984 5985-5989 5990-5994 5995-5999 6000-6004 6005-6009 6010-6014 6015-6019 6020-6024 6025-6029 6030-6034 6035-6039 6040-6044 6045-6049 6050-6054 6055-6059 6060-6064 6065-6069 6070-6074 6075-6079 6080-6084 6085-6089 6090-6094 6095-6099 6100-6104 6105-6109 6110-6114 6115-6119 6120-6124 6125-6129 6130-6134 6135-6139 6140-6144 6145-6149 6150-6154 6155-6159 6160-6164 6165-6169 6170-6174 6175-6179 6180-6184 6185-6189 6190-6194 6195-6199 6200-6204 6205-6209 6210-6214 6215-6219 6220-6224 6225-6229 6230-6234 6235-6239 6240-6244 6245-6249 6250-6254 6255-6259 6260-6264 6265-6269 6270-6274 6275-6279 6280-6284 6285-6289 6290-6294 6295-6299 6300-6304 6305-6309 6310-6314 6315-6319 6320-6324 6325-6329 6330-6334 6335-6339 6340-6344 6345-6349 6350-6354 6355-6359 6360-6364 6365-6369 6370-6374 6375-6379 6380-6384 6385-6389 6390-6394 6395-6399 6400-6404 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6905-6909 6910-6914 6915-6919 6920-6924 6925-6929 6930-6934 6935-6939 6940-6944 6945-6949 6950-6954 6955-6959 6960-6964 6965-6969 6970-6974 6975-6979 6980-6984 6985-6989 6990-6994 6995-6999 7000-7004 7005-7009 7010-7014 7015-7019 7020-7024 7025-7029 7030-7034 7035-7039 7040-7044 7045-7049 7050-7054 7055-7059 7060-7064 7065-7069 7070-7074 7075-7079 7080-7084 7085-7089 7090-7094 7095-7099 7100-7104 7105-7109 7110-7114 7115-7119 7120-7124 7125-7129 7130-7134 7135-7139 7140-7144 7145-7149 7150-7154 7155-7159 7160-7164 7165-7169 7170-7174 7175-7179 7180-7184 7185-7189 7190-7194 7195-7199 7200-7204 7205-7209 7210-7214 7215-7219 7220-7224 7225-7229 7230-7234 7235-7239 7240-7244 7245-7249 7250-7254 7255-7259 7260-7264 7265-7269 7270-7274 7275-7279 7280-7284 7285-7289 7290-7294 7295-7299 7300-7304 7305-7309 7310-7314 7315-7319 7320-7324 7325-7329 7330-7334 7335-7339 7340-7344 7345-7349 7350-7354 7355-7359 7360-7364 7365-7369 7370-7374 7375-7379 7380-7384 7385-7389 7390-7394 7395-7399 7400-7404 7405-7409 7410-7414 7415-7419 7420-7424 7425-7429 7430-7434 7435-7439 7440-7444 7445-7449 7450-7454 7455-7459 7460-7464 7465-7469 7470-7474 7475-7479 7480-7484 7485-7489 7490-7494 7495-7499 7500-7504 7505-7509 7510-7514 7515-7519 7520-7524 7525-7529 7530-7534 7535-7539 7540-7544 7545-7549 7550-7554 7555-7559 7560-7564 7565-7569 7570-7574 7575-7579 7580-7584 7585-7589 7590-7594 7595-7599 7600-7604 7605-7609 7610-7614 7615-7619 7620-7624 7625-7629 7630-7634 7635-7639 7640-7644 7645-7649 7650-7654 7655-7659 7660-7664 7665-7669 7670-7674 7675-7679 7680-7684 7685-7689 7690-7694 7695-7699 7700-7704 7705-7709 7710-7714 7715-7719 7720-7724 7725-7729 7730-7734 7735-7739 7740-7744 7745-7749 7750-7754 7755-7759 7760-7764 7765-7769 7770-7774 7775-7779 7780-7784 7785-7789 7790-7794 7795-7799 7800-7804 7805-7809 7810-7814 7815-7819 7820-7824 7825-7829 7830-7834 7835-7839 7840-7844 7845-7849 7850-7854 7855-7859 7860-7864 7865-7869 7870-7874 7875-7879 7880-7884 7885-7889 7890-7894 78																									

microstructure vary greatly with the rate of cooling. The
P content can be reduced to 0.1% without reducing the
fluidity. H. W. Rathmann

ASB 56.6 METALLURGICAL LITERATURE CLASSIFICATION

82

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001237800043-6



APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001237800043-6

The effect of the rate of cooling on the mechanical and magnetic properties of gray iron. G. A. Odings. *Metalurg* 9, No. 2, 46-53 (1934).—Rapid cooling of cast Fe contg. C 3.2, Si 3.18, Mn 0.56, P 0.36 and S 0.12% decreases the size of graphite particles, resistance to shock, and magnetic properties, and increases tensile strength, Brinell hardness, fatigue resistance and the amt. of pearlite present. H. W. Rathmann

YEGOROV, A.M.; ODINTS, Z.K.

Calculating the temperature dependences of weak electrolyte dissociation constants. Sber. nauch. trud. Gintsvetmeta no.23:241-246 '65.

Temperature dependence of the instability constants of certain complex ions. Ibid.:247-251 (MIRA 18:12)

YEGOROV, A.M.; ODINETS, Z.K.

Approximate calculation of the dependence of metal hydroxide
solubility products on temperature. Sbor. nauch. trud. Gin-
tsvetmeta no.19:308-313 '62. (MIRA 16:7)

(Hydroxide) (Solubility)
(Metals, Effect of temperature on)

YEGOROV, A.M.; ODINETS, Z.K.; Prinimale uchastiye: KUZNETSOVA, M.G.,
laborant

Behavior of the sulfides of copper, zinc, lead, and iron during
roasting in presence of sodium chloride. Sbor. nauch. trud.
Gintsvetmeta no.19:293-307 '62. (MIRA 16:7)

(Nonferrous metals--Metallurgy)
(Sulfides--Metallurgy)

YEGOROV, A.M.; ODINETZ, Z.K.

Certain conclusions from V.I.Kaznetsov's hypothesis of analogies.
Zhur.neorg.khim. 7 no.3:706-708 Mr '62. (MIRA 15:3)
(Chemistry, Analytical)

VANYUKOV, A.V.; ODINETS, Z.K.

Distribution of ferrous sulfide between matte and slag. Izv. vys.
ucheb. zav.; tsvet. met. 3 no.4:45-48 '60. (MIRA 13:9)

1. Krasnoyarskiy institut tsvetnykh metallov. Kafedra metallurgii
tyazhelykh tsvetnykh metallov.

(Nonferrous metals--Metallurgy) (Iron sulfide)

Comparative Study: Distribution Between
Matter and Living

TYPE:
SOM/149-60-1 10/27

ASSOCIATION: Krasnoyarsk Institute of Nonferrous Metals, Center for
Study of Heavy Rare Metals (Krasnoyarsk
Institute of Rare Metals, Krasnoyarsk
Institute of Rare Metals)

SUMMARY: 100-105/

Card 64

Concerning Metal Distribution between
Matte and Slag

17721
301/149 60-1-10/27

slag; with an increase of oxygen in the system, due to the weakening of the copper bond with the sulfide melt and the formation of iron micro-groups with variable valence containing sulfides. The greatest portion of nickel at the equilibrium point is located in the matte nuggets entrained in the silicate layer. The quantity of dissolved nickel does not exceed hundredths or even thousandths of one percent. A considerable quantity of dissolved nickel in actual plant slags is due to incomplete matte reactions and reversed slag oxidation in the layers area. A considerable portion of metal is lost because of mechanically entrained matte nuggets. A basic measure to counteract these losses of Co, Ni, and Cu is to reduce the oxygen content in the system matte-slag-gas phase, and better smelting conditions (superheating, greater slag fluidity, increase in interfacial tension, longer settlement time, etc.). There are 5 tables; and 17 references, 13 Soviet, 3 German, 1 U.S. The U.S. reference is: A. M. Aksey, S. D. Thesis, M.I.T. (1965)

Card 5/6

Concerning Metal Distribution Between
Matte and Slag;

77721
30V/149-60-1-10/27

Calculation results are given by the authors in numerous tables with following comments and conclusions. The distribution of cobalt between slag and matte is basically a cation exchange according to



the equilibrium of which in a neutral atmosphere follows in a satisfactory way the ideal law of acting masses. If cobalt were transferred into slag (as, for instance, during the nickel-matte refining) the temperature must be kept higher, as the value of the constant increases with higher temperatures. The distribution of copper is determined by the solubility of its sulfide. The copper content in the slag changes within the range of a few hundredths or tenths of a percent depending upon smelting conditions and components. The percentage of dissolved copper rises

Card 4/6

As the number of nodes in the network increases, the number of nodes that are not connected to any other nodes increases. This is because the number of nodes that are not connected to any other nodes is proportional to the number of nodes in the network.

Q. And you're not going to be able to tell me whether or not the person who was in the car was the person who was in the car that was involved in the accident, is that right?

diffusion and reaction (1). As the metal-oxide interface advances and metal enters the boundary jointly with a cation exchange takes place between oxides. Metal is considered as an atomic solution, and the equation of the constant represents the atomic portions of iron and of other metal.

$$K_{M_1} = \frac{(a_{M_1,1}) |a_1|}{(a_{M_1,2}) |a_{M_1}|} \quad (2)$$

The distribution coefficients were calculated according to the ratio:

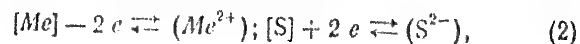
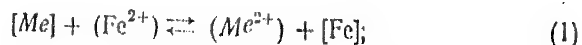
$$K_p = \frac{(v_0 M_c)}{[v_0 M_c]}, \quad (4)$$

David S/O

Concerning Metal Distribution Between
Matte and Slag

77721
SOV/149-60-1-10/27

propose the use of radioactive Au^{198} which is insoluble in slag; consequently its presence in the latter is only possible in the form of matte nuggets carrying this isotope. Using this tracer, the influence of slag, matte, and gas phase on Ni, Cu, and Co distribution among these phases was studied. The slag-matte interaction is of an electrochemical nature, and the distribution of metals between smelting products can be expressed by the equations



where square brackets indicate the concentration in matte, while parenthesis indicates that in slag. In the calculation of dissociation constants it was assumed that the slag is in full state of ionic dissociation, and the cation part of iron or other metal being

Card 2/6

18.3100

77721
SOV/149-60-1-10/27

AUTHORS: Vanyukov, A. V., Glinets, Z. K.

TITLE: Concerning Metal Distribution Between Matte and Slag

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya metallurgiya, 1960, Nr 1, pp 73-83 (USSR)

ABSTRACT: The present work deals with distribution of Cu, Ni, Co in the state of equilibrium between matte and slag. Ideal law of mass action in systems consisting of slag, matte, and gas is not always valid; moreover, constants are variable depending on changes in phase composition. A slight increase in dissolved oxygen causes a greater solubility of metals. The matter is complicated by fine matte dispersions in the slag, which cannot be easily eliminated. An interesting method in this direction is high temperature centrifugation of slags. B. V. Lipin has made considerable contributions (Non-Ferrous Metals, Nr 9, 1957) to this procedure. However, perfect separation cannot be achieved in small crucibles at low speeds of 500-1,000 rpm. Therefore, the authors

Card 1/6

ODINETE, Z. K. Cand Tech Sci -- (diss) "Study of the distribution of copper, nickel, and cobalt between ~~the matte and the slag~~ the matte and the slag."
Mos, 1959. 12 pp (Min of Higher Education USSR. Krasnoyarsk Inst of Nonferrous Metals im M. I. Kalinin. Chair of Metallurgy of Heavy Metals), 150 copies (KL, 47-59, 115)

SOV/149-58-5-4/18

On the Form of Metal Losses in Slags

(iv) since increasing the temperature lowers the proportion of mechanically entrapped matte inclusions without significantly increasing the quantity of metals dissolved in the slag, it appears that in order to lower the total metal content of the waste slags the melt should be overheated.

There are 9 figures, 5 tables and 24 references, 16 of which are Soviet, 7 English and 1 German.

ASSOCIATION: Moskovskiy institut tsvetnykh metallov i zolota.
Kafedra metallurgii tyazhelykh tsvetnykh metallov.
(Moscow Institute of Non-ferrous Metals and Gold.
Chair of Metallurgy of Heavy Non-ferrous Metals)

SUBMITTED: July 16, 1958

Card 8/8

SOV/149-58-5-4/18

On the Form of Metal Losses in Slags

slags can be considerably reduced by application of preliminary sulphiding treatment during the sintering process and by improving the quality of the sintered agglomerate. It is also necessary to limit to a minimum the Fe_3O_4 content in the raw agglomerate by sintering in a tube furnace. Lowering of the magnetite content in the sinter cake entering the reverberatory copper smelting furnace can be attained by introducing a reducer in the bottom hearth of the sintering furnace. The practice of introducing the converter slags containing a large proportion of magnetite in the reverberatory furnace is not to be recommended;

(iii) losses of Ni and Cu in the slags occur mainly by way of the mechanically entrapped matte inclusions. These losses become smaller under conditions which favour the coalescence of the sulphide droplets and their separation from the slag. The fact that with increasing acidity of the slag the mechanical losses of metals decrease indicates that in some cases the surface properties which govern the process of coalescence are of primary importance;

Card 7/8

On the Form of Metal Losses in Slags

SOV/149-58-5-4/18

The results of the present investigation show that:

(i) in a neutral atmosphere, the quantities of Ni and Cu dissolved in the slag amount to little more than 0.001 and 0.01% respectively. Owing to higher solubility of CoS and the reversibility of the reaction



the amount of Co dissolved in the slag is considerably higher and can exceed 0.1%;

(ii) the quantity of metals dissolved in the slag depends to a large extent on the Fe_3O_4 content of the matte and

on the composition of the gaseous phase. The higher the Fe_3O_4 content of the matte and the higher the proportion

of O_2 present in the gaseous phase the higher is the proportion of metals dissolved in the slag. Presence of oxygen-bearing nickel compounds in industrial slags obtained during smelting of nickel oxide ores can be explained either by the fact that the sulphiding reaction does not proceed to completion, or by the entrapment of the burden fines in the slag. This means that nickel losses in the

Card6/8

On the Form of Metal Losses in Slags

SOV/149-58-5-4/18

The effect of acidity of the slag is shown in Figure 3: left - dissolved Ni (1) and Cu (2), mechanical losses of Co (5); right - dissolved Co (3), mechanical losses of Cu (4). Figure 4 shows the effect of the sulphur content of the matte with a constant metal content on the quantity of metals dissolved in the slag: Curve 1 - Ni, Curve 2 - Cu and Curve 3 - Co. The effect of the metal content of the matte (at constant S content) on the distribution of metals in the slag is shown in Figure 5: left - dissolved Ni (1) and Cu (2) and mechanical losses of Co (5); right - dissolved Co (3) and mechanical losses of Cu (4) and Ni (6). The effect of temperature is shown in Figure 6: left - dissolved Ni (1) and Cu (2); right - dissolved Co (3) and mechanical losses of Cu (4) and Co (5). Figure 7 shows the effect of the oxygen content of the matte on the quantity of copper dissolved (Curve 1) and mechanically entrapped (Curve 2) in the slag. The effect of the temperature, matte composition and replacing FeO by CaO on the solubility of FeS in the slag is shown in Figure 8, that of the acidity of the slag, matte composition and temperature is illustrated in Figure 9.

Card5/8

(On the Form of Metal Losses in Slags

SOV/149-58-5-4/18

in Figure 1 and the results are reproduced graphically. To check the reliability of the radioactive tracer technique, one series of experiments with a nickel matte was repeated under the same conditions using the following method. A small, cylindrical crucible provided with a small orifice half way up its wall was placed in a larger crucible. The nickel matte was placed in the small crucible below the level of the orifice. Slag was placed in both crucibles, its level in the large crucible being slightly larger than in the small one. It was assumed that small dimensions of the orifice in the smaller crucible would prevent the matte inclusions finding their way to the slag contained in the large crucible, so that the total metal content of this slag would correspond to metals dissolved in the slag. As can be seen from Table 5, there was a close agreement between the results obtained by the two different methods. The effect of replacing FeO by CaO on the distribution of Cu, Ni and Co in the slag of constant acidity at 1300 °C is shown in Figure 2. Scale on the left side - dissolved Ni (Curve 1) and Cu (Curve 2). Scale on the right side - dissolved Cu (3), mechanical losses of Cu (4) and Co (5).

Card4/8

On the Form of Metal Losses in Slags

SOV/149-58-5-4/18

in the slag that had been melted in contact with a matte of a given composition. On the assumption (later verified experimentally) that gold is not soluble in slag, a radio-active isotope Au^{198} had been introduced into all the experimental mattes. On the completion of each experiment in which matte of a given composition was melted under purified argon (partial oxygen pressure less than 0.6×10^{-11} atm) in contact with one of the experimental slags, the radioactivity of the slag was therefore proportional to the amount of the matte inclusions mechanically entrapped in the slag. On the assumption that the composition of the matte inclusions was the same as that of the original material, the quantity of metals carried by these inclusions was calculated from the known values of the radioactivity of the slag and the matte. The total metal content of the slag was determined by chemical analysis and the quantity of metals dissolved in the slag was found by difference. The experimental apparatus is illustrated diagrammatically

Cor 43/8

SOV/149-58-5-4/18

On the Form of Metal Losses in Slags

the effect of various factors on the relative concentration of nickel, copper and cobalt in the matte and in the slag. The composition of the experimental slags is given in Table 1. They were synthesized by melting under nitrogen, in iron crucibles, calculated quantities of fayalite, pure SiO_2 powder and reactive CaO calcined at 900°C , the final product being ground to 60 mesh. Fayalite was prepared in the same manner from ferric oxalate and pure SiO_2

powder and according to the results of microscopic examination no magnetite was present in the final product. The experimental mattes were prepared from pure sulphides melted in alumina crucibles under purified argon. The iron and nickel sulphides were obtained by passing H_2S over "Armco" iron shavings and nickel powder at 700 and 900°C , respectively. The copper and cobalt sulphides were prepared by direct fusion of the components in graphite crucibles. The chemical analysis of the sulphides is given in Table 2.

Radioactive tracer technique was used for determination of the form in which the investigated metals were present

Card2/8

AUTHORS: Vangukov, A.V. and Odinetz, Z.K. SOV/149-58-5-4/18

TITLE: On the Form of Metal Losses in Slags (O forme poter' metallov so shlakami)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, 1958, Nr 5, pp 27 - 37 (USSR)

ABSTRACT: Waste slags constitute the main source of losses of metals during their extraction by pyrometallurgical methods. According to a rough estimate, lowering of the nickel content in the waste slags produced by the Yuzhural'-nikel Combine by only 0.01% would result in an annual saving of 3.5 million roubles. There are indications that metals can be present in slags in the form of dissolved sulphides, mechanically entrapped matte inclusions and various silicates and oxides, but data on the quantitative relationship between these various forms of metal losses are lacking. Solubility of FeS, GaS and MgS in slags is said to be high, that of ZnS limited, while data on the solubility of NiS, Cu₂S and CoS are contradictory.

Card1/8 The object of the present investigation was to determine

ODINETS, Ye.V., nauchnyy sotrudnik

Replantation of teeth, experimental study. Stomatologiya 42
no.2: 46-49 Mr-Apr'63 (MIRA 17:3)

1. Iz kliniki chelyustno-litsevoy khirurgii (zaveduyushchiy nauchnyy sotrudnik Ye.V.Odinets) Ukrainskogo nauchno-issledovatel'skogo instituta ortopedii i travmatologii (direktor dotsent I.P.Alekseyenko) i kafedry khirurgicheskoy stomatologii (zaveduyushchiy - prof. Yu.I.Bernadskiy) Kiyevskogo meditsinskogo instituta.

ODINETS, Ye.V.

Transplantation of teeth in chronic periodontitis. Probl. stom.
5:208-212 '60. (MIRA 15:2)

1. Kiyevskiy meditsinskiy institut.
(TEETH_DISEASES) (TEETH_TRANSPLANTATION)

Reactivity of the vinyl group in ...

S/079/62/032/004/002/010
D204/D301

A, the first stage consists of the formation of $\text{CH}_2^+-\text{CH}-\text{SiCl}_3$,
 AlCl_3

which then reacts with C_6H_6 to give $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_2\text{SiCl}_3 + \text{AlCl}_3$. This is confirmed by the anomalous addition of the aromatic radical to the β -C. Successive replacement of Cl by CH_3 makes the formation of the carbonium ion less probable. Experimental details are fully described and physical properties of the addition products are given. There are 1 table and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: G.H. Wagner, D.L. Bailey, A.N. Pines, M.L. Dunham and D.B. McIntire, Ind. Eng. Ch., 45, 367, 1953; L.H. Sommer, R.E. VanStrien F.C. Whitmore, J. Am. Chem. Soc., 71, 3056, 1949; M Kanazashi, Bull Chem. Soc. Japan, 1953, 493.

SUBMITTED: April 24, 1961

Card 2/2

36021
S/079/62/032/004/002/010
D204/D301

15.817^a
AUTHORS:

Andrianov, K.A., Zhdanov, A.A., and Odinets, V.A.

TITLE:

Reactivity of the vinyl group in substituted silanes in addition reactions with benzene, in the presence of aluminum chloride

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 4, 1962, 1126-1130

TEXT: Addition reactions of C_6H_6 to $CH_2 = CHSiCl_3$ (A), $CH_2 = CHSi(Me)Cl_2$ (B), $CH_2 = CHSi(Me)_2Cl$ (C), and $CH_2 = CHSiMe_3$ (D) were studied, to determine the effect of substituents on the reactivity. All reactions were carried out over 4 1/2 hours at 75°C, in the presence of $AlCl_3$. Additions took place across the double bond to give $PhCH_2CH_2SiCl_3$, $PhCH_2CH_2Si(Me)Cl_2$ and $PhCH_2CH_2Si(Me)_2Cl$ in the cases of A, B and C respectively. The reactivity decreased from A to C and D did not react at all. The reaction mechanism is discussed in terms of displacements of π -electrons of the vinyl group by the Cl and CH_3 groups in compounds A, B, C and D. It is suggested that in

Card 1/2

31193

The addition of aromatic ...

S/079/61/031/012/007/011
D258/D301

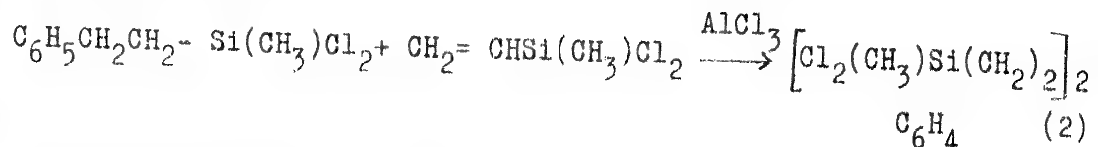
Pines, M. L. Dunham, Ind. Eng. Ch., no. 2, 368, (1953); R. E. Richard, H. W. Thompson, J. Chem. Soc., (1949), 124.

SUBMITTED: November 29, 1960

Card 3/3

31193

The addition of aromatic ...

S/079/61/031/012/007/011
D258/D301

The primary addition products were converted to the corresponding silane diols by acetylation with CH_3COOK and subsequent hydrolysis. The infrared-spectra of all these diols confirm the presence of Si-CH_3 groups (1258 cm^{-1}), of an aromatic nucleus and of SiOH groups ($830 - 880 \text{ cm}^{-1}$). The authors conclude that the phenyl compound adds on in the β -position (with respect to Si). The syntheses of the primary addition products are then described: The melting points of the benzene, toluene, chlorobenzene, and diphenyl derivatives were $80-81$, 70 , $89-91$, and $132-134^\circ\text{C}$ respectively. There are 4 figures, 1 table and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: G. H. Wagner, D. L. Bailey, A. H.

Card 2/3

53700

31193

S/079/61/031/012/007/011
D258/D301

AUTHORS: Andrianov, K. A., Zhdanov, A.A., and Odinets, V. A.
 TITLE: The addition of aromatic derivatives to vinyl methyl dichlorosilane
 PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 12, 1961, 4033-4038

TEXT: The authors showed that the addition of either benzene, toluene, chlorobenzene or diphenyl to vinyl methyl dichlorosilane yields the corresponding (*B*-aryl ethyl)-methyldichlorosilanes and also a higher boiling by-product: $\text{ArH} + \text{CH}_2 = \text{CHSi}(\text{CH}_3)\text{Cl}_2 - \text{AlCl}_3 \longrightarrow \text{ArCH}_2\text{CH}_2\text{Si}(\text{CH}_3)\text{Cl}_2 \dots (1)$. The by-product was isolated in the case of benzene and identified as bis-(2-dichloromethyl silyl ethyl)-benzene, formed on further reaction of the primary product with a second molecule of the silane:

Card 1/3

27491
S/062/61/000/009/006/014
B117/B101

Synthesis of liquid 1,n-hexamethyl- ...

activation energy of viscous flow is hardly dependent on the polar groups. Substitution of the hydrogen atom at the nucleus by methyl or chlorine, however, always increases the activation energy. The activation energy of flow depends on the number of silicon atoms in the polymers under study. The polar properties of the radicals investigated decreases in the order $-C_2H_4C_6H_4Cl > -C_2H_4C_6H_4CH_3 > -C_2H_4C_6H_5$. There are 12 figures, 2 tables, and 12 references: 7 Soviet and 5 non-Soviet. The three references to English-language publications read as follows: C. C. Currie, Industr. and Engng. Chem. 46, 2331 (1954); L. H. Sommer, R. P. Pioch, J. Amer. Chem. Soc. 75, 6337 (1953); L. H. Sommer, W. D. English, G. R. Ansul, D. N. Vivona, J. Amer. Chem. Soc. 77, 2485 (1955).

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences USSR)

SUBMITTED: December 12, 1960

Card 3/6

27491
S/062/61/000/009/006/014
B117/B101

Synthesis of liquid 1,n-hexamethyl- ...

phenyl-ethyl)-methyl-dichloro silane ($\text{ClC}_6\text{H}_4\text{C}_2\text{H}_4(\text{CH}_3)\text{SiCl}_2$, b.p. $124^\circ\text{--}126^\circ\text{C}$ (2 mm Hg). The synthesis of these compounds is described in Ref. 11 (K. A. Andrianov, et al. Zh. obshch. khimii (in print)). The liquid polymers were obtained by the joint hydrolysis of toluene solution of mixtures of these compounds with trimethyl-chloro silane (b.p. $58^\circ\text{--}59^\circ\text{C}$) at $90\text{--}95^\circ\text{C}$. Polymers of varying degrees of polymerization, according to the reactant ratio, may be isolated from the reaction mixture (Table 1). Hydrolysis of ethereal solution of (phenyl)-methyl-dichloro silane yielded cyclic polymers also: tri(phenyl-ethyl)-trimethyl cyclotrisiloxane $[\text{C}_6\text{H}_5\text{C}_2\text{H}_4(\text{CH}_3)\text{SiO}]_3$ and tetra(phenyl-ethyl)-tetramethyl cyclotetrasiloxane $[\text{C}_6\text{H}_5\text{C}_2\text{H}_4(\text{CH}_3)\text{SiO}]_4$. Evaluation of the infrared spectra of the compounds investigated indicates that the addition of the vinyl aromatic nucleus takes place in β position, giving β -substituted derivatives. The density of the liquids was determined pycnometrically. Viscosity measurements were carried out by standard methods with an Ostwald-Pinkevich viscosimeter. Data on the activation energy of viscous flow and the temperature coefficients of the viscosity are shown in Table 2. It was found that for the lowest-molecular members of the homologous series the

Card 2/6

15.8170

27491
S/062/61/000/009/006/014
B117/B101

AUTHORS: Andrianov, K. A., Zhdanov, A. A., and Odinets, V. A.
TITLE: Synthesis of liquid 1,n-hexamethyl-poly(phenyl-ethyl)-methyl
siloxanes and investigation of their properties
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh
nauk, no. 9, 1961, 1615-1624

TEXT: The lowest-molecular members of the polymerhomologous series of 1,n-hexamethyl-poly(phenyl-ethyl)-methyl siloxanes were synthesized and their properties studied. The work was undertaken to study the dependence of the polar properties of these liquid organo-silicon polymers on various polar substituents at the benzene ring. The polar properties were studied on the basis of the activation energy of viscous flow and the temperature dependence of the viscosity. The flowing initial substances were used for the synthesis: (phenyl-ethyl)-methyl-dichloro silane ($C_6H_5C_2H_4(CH_3)SiCl_2$, b.p. $90^{\circ}-92^{\circ}C$ (5 mm Hg)), (tolyl-ethyl)-methyl-dichloro silane ($CH_3C_6H_4C_2H_4(CH_3)SiCl_2$, b.p. $103^{\circ}-105^{\circ}C$ (2 mm Hg)), (chloro-

Card 1/6

Chloromethylation of Aryl-aliphatic Disiloxanes.
 Synthesis of Chloromethylbenzylidimethylchlorosilane and its Derivatives

67047

S97/20-130-1-20/69

yields. The end product obtained had all properties of the alkylchlorosilane halides. By hydrolysis with water, it readily forms the disiloxane. Bis-(chloromethylbenzyl)-tetramethyldisiloxane was isolated as a consequence of this reaction (see Scheme). By the action of potassium acetate on this latter substance in acetic medium, bis-(acetoxymethylbenzyl)-tetramethyldisiloxane was formed. On hydrolysis of the latter compound, the acetate group is split off. In the first stage, bis-(oxymethylbenzyl)-tetramethyldisiloxane develops which afterwards decomposes by the catalytic action of the alkali during distillation. Toluyl methanol and polydimethyldisiloxanes with functional end groups as shown in the scheme are probably formed. Table 1 shows the properties of the substances synthesized. A. V. Tonchiver and N. S. Nametkin are mentioned in the paper. There are 1 table and 8 references, 5 of which are Soviet.

SUBMITTED: September 30, 1959

Card 2/2

5.3700(B)

67947

SOV/20-130-1-20/69

~~5(3)~~

AUTHORS:

Andrianov, K. A., Corresponding Member AS USSR, Zhdanov, A. A.,
Odinets, V. A.

TITLE:

Chloromethylation of Aryl-aliphatic Disiloxanes. Synthesis of
Chloromethylbenzyltrimethylchlorosilane and Its Derivatives

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 1, pp 75-78 (USSR)

ABSTRACT:

The authors proved that the chloromethylation of the benzyl group bound to silicon can be successfully used for the synthesis mentioned in the subtitle (see Scheme). This reaction proceeds well in fuming hydrochloric acid. Paraform is used as an agent of chloromethylation. The chloromethylation in the presence of zinc chloride is accompanied by secondary processes. They form viscous, nondistillable products containing diphenyl-methane groups (see Scheme). The isolation of pure chloromethylbenzyltrimethylchlorosilane from the reaction mixture was attained by hydrolysis with excess water while the disiloxane mixture was split by strong sulfuric acid in the presence of ammonium chloride (see Scheme). The total yield in chloromethylbenzyltrimethylchlorosilane was 60% of the benzyltrimethylchlorosilane reacted, and 30% of the quantity used respectively. Direct fractionation of the chloromethylation products purified with water in the vacuum delivered smaller

Card 1/2

On the Acylation Reaction of the Aryl Aliphatic Disiloxanes. SOV/79-29-8-57/8
 II. Synthesis of Silicon-organic Aromatic Ketones and Difunctional Keto-
 carboxylic Acids

disiloxane was precipitated (40%). It forms easily the di-nitrophenylhydrazone which contains 11.44 % nitrogen, and thus indicates the presence of two ketone groups in the molecule of the synthesized compound. The molecular refraction of this siloxane was found to be 4 units higher than that of E. Warrick (Ref 6). (A. D. Petrov (Ref 5) found it to be higher by two units in 4-substituted silanes with one group). The data obtained show that the acylation of benzyldimethylchlorosilane is also possible with the anhydrides of the dicarboxylic acids and the acid chlorides of the monocarboxylic acids without a noticeable destruction of the compounds taking part in the reaction under the influence of hydrogen chloride. The properties of the compounds obtained are given in the table. There are 1 table and 7 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
 (Institute of Elemental Organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: July 11, 1958
 Card 2/2

5(3)

AUTHORS:

Andrianov, K. A., Odinets, V. A., Zhdanov, A. A.

SOV/79-29-8-57/81

TITLE:

On the Acylation Reaction of the Aryl Aliphatic Disiloxanes.
II. Synthesis of Silicon-organic Aromatic Ketones and Di-
functional Ketocarboxylic Acids

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 8,
pp 2702 - 2706 (USSR)

ABSTRACT:

As the authors showed in a previous paper (Ref 1), benzyldi-
methylchlorosilane easily reacts with acetic anhydride in
the presence of $AlCl_3$ while bis-(4-acetobenzyl)-tetramethyl-
disiloxane is formed with a yield of 50%. In the present
paper this reaction was used in the synthesis of silicon di-
carboxylic acid and aromatic ketones. Benzyldimethylchloro-
silane and the acylating compounds (succinic acid - phthalic
anhydride and benzoylchloride) were used as a basis (Scheme 1).
By means of the reaction the best yield was achieved in a
benzene medium (50-60%). The acylation of benzyldimethyl-
chlorosilane with benzoylchloride leads to the aromatic di-
ketone according to scheme 2. Bis-(benzoylbenzyl)-tetramethyl-

Card 1/2

On the Reaction of Acylation of Arylaliphatic
Disiloxanes. Synthesis of Bis-(4,4'-Acetobenzyl)-tetramethyl-disiloxane SOV/79-29-5-21/75

ASSOCIATION: Institut elementoorganicheskikh sovedineniy Akademii nauk SSSR
(Institute of Elemental-Organic Compounds of the Academy of
Sciences, USSR)

SUBMITTED: April 3, 1958

Card 3/3

On the Reaction of Acylation of Arylaliphatic Disiloxanes. Synthesis of Bis-(4,4'-Acetobenzyl)-tetramethyl-disiloxane SOV/79-29-5-21/75

disiloxane has the properties of aliphatic-aromatic ketones and forms the dinitro-phenyl hydrazone in which case the reaction proceeds via both carbonyl groups. On oxidation of the bis-(acetobenzyl)-tetramethyl-disiloxane with sodium hypobromide in alkali the toluic acid is formed which was identified in the form of its methyl ester. A comparatively easy separation of the benzyl carboxy-group is connected with the displacement of the reactivity in the system of the conjugated nuclear bonds. In consequence of it a decrease of the electron density on the silicon nucleus and subsequent rupture of the Si-C-bond takes place under the influence of nucleophilic agents. When using alkaline potassium solution, the oxidation is complete and terephthalic acid is formed. The formation of the p-toluic and terephthalic acid indicates that the aceto-group comes into para-position with respect to the methylene group during the Friedel-Crafts reaction. Properties of the compounds synthesized are given in the table. There are 1 table and 6 references, 4 of which are Soviet.

Card 2/3

5 (3)

AUTHORS: Andrianov, K. A., Odinets, V. A.,
Zhdanov, A. A.,

SOV/79-29-5-21/75

TITLE: On the Reaction of Acylation of Arylaliphatic Disiloxanes
(O reaktsii atsilirovaniya arilalifaticheskikh disiloksanov).
Synthesis of Bis-(4,4'-Acetobenzyl)-tetramethyl-disiloxane
(Sintez bis-(4,4'-atsetobenzil)-tetrametildisiloksana)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5,
pp 1499-1503 (USSR)

ABSTRACT: The authors concluded from the formation of benzyl methyl
chloro-silanes and acylation of benzyl-trimethyl silane that
the Friedel-Crafts reaction may be successfully applied to the
synthesis of various benzyl siloxane derivatives in which the
aromatic nucleus is separated from the silicon atom by the
methylene group. Experiments indicated that benzyl-dimethyl-
chloro-silane is not destroyed in the presence of aluminum
chloride and can be used as initial product for the synthesis
of bis-(acetobenzyl)-tetramethyl-disiloxane. The benzyl-
dimethyl-chloro silane was prepared according to the Grignard
reaction from dimethyl-dichloro-silane and benzyl magnesium
chloride. The synthetic bis-(acetobenzyl)-tetramethyl-

Card 1/3

On the Reaction of Chloro Phenyltrichloro Silane
Hydrolysis in Aqueous Media

SOV/62-59-3-12/37

structure requires very high temperatures (Ref 7). Consequently the stability of the polymers obtained by hydrolysis of phenyl- and chlorophenyl-trichlorosilanes against is, contrary to thermal conversions, determined by steric cycles. There are 3 tables and 7 references, 3 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elemental Organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: June 25, 1957

Card 3/3

On the Reaction of Chloro Phenyltrichloro Silane
Hydrolysis in Aqueous Media

SOV/62-59-3-12/37

an average polymerization degree of $n = 5$. Irrespective of the small melting range, they possess a considerable polydispersion. This might be the cause of the difficult separation of crystalline products from polychloro phenyl siloxanes. Only in the case of polypentachloro phenyl siloxane 4 crystalline fractions could be separated. These individual crystalline polymers have a steric-cyclic structure $(Cl_5C_6SiO_{1,5})_n$.

Cyclic products not only of steric but also of planar structure are probably formed there. The thermoplastic proportion of the polymers obtained on hydrolysis of phenyl- and chloro phenyl-trichloro silanes in the case of water excess are due to the formation of cyclic products of steric structure. Such cyclic products have no functional groups and can therefore be transformed into builtup or builtup-steric higher polymer structures by opening of the cycles only. As was shown by the thermal aging of the polyorganosiloxanes obtained from trifunctional monomers, the breaking of the

-Si-O bond in polymers possessing chain links of $(RSiO_{1,5})_n$ -

Card 2/3

5(3)

AUTHORS:

Andrianov, K. A., Odinetz, V. A.

SOV/62-59-3-12/37

TITLE:

On the Reaction of Chloro Phenyltrichloro Silane Hydrolysis in Aqueous Media (O reaktsii gidroliza khlorfeniltrikhlorsilanov v vodnykh sredakh)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 3, pp 460-465 (USSR)

ABSTRACT:

In the present paper the hydrolysis of chloro phenyl-tri-chloro silanes in aqueous media at 36-38° was investigated. In all experiments solid, brittle polymers were obtained which are easily soluble in organic solvents and possess distinctly marked melting points. After long heating at 200° they retain their thermoplastic properties and good solubility. The analysis of the polymers obtained with regard to the functional groups indicated the absence of chlorine and the hydroxyl groups combined with the silicon atoms. X-ray investigations revealed the occurrence of a crystalline phase. The polymers melt within a small temperature range which is typical of crystalline substances (Table 1). On the basis of analytical data and the determination of the molecular weight the polychloro phenyl siloxanes obtained represent polymers with

Card 1/3

ANDRIANOV, K.A.; ZHDANOV, A.A.; ODINETTS, V.A.

Condensation of silicon organic dicarboxylic keto acids with
glycol. Vysokom.sped. 1 no.5:704-710 My '59.
(MIRA 12:10)

1. Institut elementoorganicheskikh soedineniy AN SSSR.
(Glycols) (Silicon organic compounds)

ODINETS, V. A.

L. M. Volkova, K. A. Andrianov, G. Ye. Golubkov, L. N. Makarova, and V. A. Odinets, "The Introduction of Polar Groups into Organic Radical at the Silicon Atom."

Report presented at the Second All-Union Conference on the Chemistry and Practical Application of Silicon-Organic Compounds held in Leningrad from 25-27 September 1958.

Zhurnal prikladnoy khimii, 1959, Nr 1, pp 238-240 (USSR)

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 950

Abstract: 70-80° over 10-15 hours. The following I have been prepared (the value of n, the position of Cl in the nucleus, bp in ° C/mm, and d_{20}^{20} are given in that order): 1, 3 (IV), 90-95/10, 1.4102; 2, 1, 3, 105-110/10, 1.4801; 3, 1, 3, 5, 123-125/10, 1.5530; 4, 1, 2, 3, 5, 135-137/10, 1.6210; 5, 1, 2, 3, 4, 5, 147-150/10, --. To one gram-atom of Mg turnings, heated to 36-38°, add dropwise 20 gms C_2H_5Br at 38-40°; after initiation of the reaction, add one mole of C_2H_5Br , and 100 gms toluene. Heat 2 hours at 70-80°, filter and distill; III is obtained. A similar method can be used in the preparation of the remaining compounds of the type II.

Card 2/2

2D-AC TS V. A.

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 950

Author: Andrianov, K. A., and Odinets, V. A.

Institution: Academy of Sciences USSR

Title: Synthesis of Chlorophenylethyldichlorosilanes

Original

Periodical: Azv. AN SSSR, Section on Chemical Sciences, 1956, No 4, 457-460

Abstract: The reaction of $\text{Cl}_n\text{C}_6\text{H}_{5-n}\text{SiCl}_3$ (I) with $\text{C}_2\text{H}_5\text{MgBr}$ yields compounds of the type $\text{Cl}_n\text{C}_6\text{H}_{5-n}(\text{C}_2\text{H}_5)_2\text{SiCl}_2$ (II); of the latter the following have been prepared (the value of n , the position of Cl in the benzene nucleus, the yield in percent, bp in °C/mm, n_D^{20} , and d_4^{20} are given in that order): 1, 3 (III), 70.3, 116-118.7, 1.5270, 1.2947; 2, 1, 3, 53.7, 130-132/10, 1.5450, 1.4381; 3, 1, 3, 5, 41, 142-144/12, 1.5481, 1.4921; 4, 1, 2, 3, 5, 30, 123-125/3, 1.5618, 1.5396; 5, 1, 2, 3, 4, 5, 23, 145-147/3, 1.5650, 1.5996. The starting I are obtained by the chlorination of one mole of $\text{C}_6\text{H}_5\text{SiCl}_3$ in the presence of anhydrous FeCl_3 (0.5 weight percent based on the chloride) at

Card 1/2

Electrode Synth. am V. A. Denis

ODINETS V.A.

USSR

62
 synthesis of (chloromethyl)alkoxysilanes and the re-
 placement of their halogen by ester groups. L. I. Andrianov, L. I. Malenkova, L. M. Volkova, and V. A. Gainers. *Doklady Akad. Nauk S.S.S.R.* 28, 219-220 (1961).
 $\text{ClCH}_2\text{SiCl}_3$ (95 g.) treated over 1 hr. with 100 g. iso-
 PrOH , the mixt. heated 5 hrs. at 120° , and the product
 distd. yielded 88 g. (89%) $(\text{iso-PrO})_2\text{SiCH}_2\text{Cl}$, b. $195-9^\circ$,
 n_D^{20} 1.4145, d_4^{20} 0.8430. Similarly were prepd. the follow-
 ing (yields, b.p., n_D^{20} , and d_4^{20} given): $(\text{iso-BuO})_2\text{SiCH}_2\text{Cl}$, 82,
 $241-2^\circ$, 1.4236, 0.9577; $(\text{BuO})_2\text{SiCH}_2\text{Cl}$, 72, $243-4^\circ$,
 1.4270 , 0.9624 ; $(\text{iso-AmO})_2\text{SiCH}_2\text{Cl}$, 64, $274-80^\circ$, 1.4285 ,
 0.9568 ; $(\text{iso-PrO})_2\text{SiHCH}_2\text{Cl}$, 72, $177-8^\circ$, 1.4126 , 0.9340 ;
 $(\text{iso-BuO})_2\text{SiHCH}_2\text{Cl}$, 72, $214-15^\circ$, 1.4220 , 0.9479 ; $(\text{iso-AmO})_2$
 SiHCH_2Cl , 77.5, $226-7^\circ$, 1.4290 , 0.9567 ; $(\text{iso-AmO})_2$
 SiMeCH_2Cl , 68, $243-1^\circ$, 1.4390 , 0.9414 . To 2.01 g. powd.
 Na under xylene was added 0.22 g. AlCl_3 , the mixt. heated
 until the Na had reacted, and the suspended EtONa treated
 with 20 g. $(\text{BuO})_2\text{SiMeCH}_2\text{Cl}$; after 5 hrs. at 100° the mixt.
 yielded 31% $(\text{BuO})_2\text{SiMeCH}_2\text{OEt}$, b. $128-4^\circ$, n_D^{20} 1.4168,
 d_4^{20} 0.9644; similarly was prepd. 46% $(\text{BuO})_2\text{SiCH}_2\text{OEt}$, b.
 $115-17^\circ$, n_D^{20} 1.4237, d_4^{20} 0.9074. O. M. Kossolapov.

(3)

ODINETS, R.N., ed.

[Trace elements in animal husbandry and plant culture]
Mikroelementy v zhivotnovodstve i rastenievodstve.
Frunze, Izd-vo "Ilim," 1964. 102 p. (MIRA 18:2)

1. Akademiya nauk Kirgizskoy SSR, Frunze. Institut biokhimii i fiziologii.

ODINETS, R.N., ILIBEZOVA, YE.P. (USSR)

"Some Questions of Strontium Metabolism in Sheep."

Report presented at the 5th Int'l. Biochemistry Congress,
Moscow, 10-16 Aug. 1961.

ODINETS, R.N.

"Precursors" of fat in cow's milk. Dokl. AN Tadjh. SSR. no. 15:77-
81 '56. (MLRA 9:10)

1. Institut zoologii i parazitologii AN Kirgizskoy SSR.
(Milk--Composition)

CA ODINETS R.N.

11F

Sulfur and nitrogen metabolism in pregnant sheep. V. I. G. Yakovlev, R. N. Odinets, G. N. Ozerova, and K. I. Kanygina. *Doklady Akad. Nauk S.S.S.R.* 74, 901-4 (1959).—When pregnant sheep are fed 50 g. keratin (from wool hydrolysis) instead of 70 g. linseed cake in the diet, a somewhat higher (than control) yield of wool is obtained from the animals on shearing and indications of better S assimilation are obtained. However, the control groups show better degree of deposition of S in the organism. G. M. Kosolapoff

ODINETS, P.I.

Method of producing conditioned reflexes for the study of the vestibular apparatus. Fiziol. zh. SSSR 39 no.3:367-373 May-June 1953.

(OLML 25:1)

L. Department of Comparative Physiology and Pathology of Higher Nervous Activity of the Institute of Experimental Medicine of the Academy of Medical Sciences USSR.

SOV/65-58-11-9/15

Characteristics of Behaviour of Sulphur of Irkutsk Coals During
Their Separation in Heavy Liquids.

phur in this type of coal is less thermostable. There
are 3 Figures, 5 Tables and 8 Soviet References.

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Card 4/4

SOV/85-58-11-9/15

Characteristics of Behaviour of Sulphur of Irkutsk Coals During
Their Separation by Heavy Liquids

When there is either a very small quantity or no mineral sulphur in the coal (fractions 1.25 - 1.24 and 1.26). Separation of organic sulphur in the presence of large quantities of mineral sulphur is very difficult. Similar observations were made by E. S. Krym et al. (Ref. 7) who tested coals from the Donets basin, and by L. P. Ukhov (Ref. 8) during the semi-cooking of Kiselevskiy coals. The content of organic sulphur increases slightly in semi-coals. This can be explained by the sharp decrease in the mineral sulphur content and the formation of a considerable quantity of decomposition products of mineral sulphur compounds. This could not be observed during the semi-cooking of the 1.40 fraction of Delyurskiy coal because these contain a much smaller quantity of mineral sulphur. It was also found that the organic sul-

Card 3/4

NOV/65-58-11-9/15

Characteristics of Behaviour of Sulphur of Irkutsk Coals During
Their Separation in Heavy Liquids

1.35, 1.30, 1.28, 1.26, 1.25, 1.24. In this way, for each type of coal a number of fractions with different quantitative yields were prepared. Percentage yields of these fractions are given in Table 4, and results of the separations in Fig.1. The area of each figure represents the total of the yields of all fractions. Reasons for the variations in the yields of the fractions are stated (when taking into account their equal degree of metamorphosis and identical petrographic structure). Further investigations concern fractions with anomalous content of mineral and organic sulphur. The different forms of sulphur and ash were determined in all fractions (Table 4). Results were given in the form of a graph (Fig.2). The fraction 1.40 - 1.25 and 1.24 of Vladimir' coal were of greatest interest because in these fractions the ratio of the mineral to the organic sulphur differed to a large degree from the ratio in the starting material. Results obtained, during the semi-coking and coking of these fractions, and when analysing the sulphur content in the solid products, are given in Table 5. The organic sulphur is separated completely

Card 2/4